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# RADIUM

EDITED BY
CHARLES H. VIOL, Ph. D.
AND
WILLIAM H. CAMERON, M. D.

VOL. VIII DECEMBER, 1916 No. 3

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A MONTHLY JOURNAL DEVOTED TO THE CHEMISTRY PHYSICS AND THERAPEUTICS OF RADIUM AND RADIO-ACTIVE SUBSTANCES

# RADIUM

A MONTHLY JOURNAL DEVOTED TO THE CHEMISTRY, PHYSICS AND THERAPEUTICS OF RADIUM AND RADIO-ACTIVE SUBSTANCES.

Edited and Published by Charles H. Viol, Ph. D., and William H. Cameron, M. D. with the assistance of collaborators working in the fields of Radiochemistry, Radioactivity and Radiumtherapy.

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VOL. VIII. DECEMBER, 1916 No. 3

## RADIUM THERAPY*

REMARKS ON THE USE OF RADIUM IN DEEP-SEATED MALIGNANT DISEASE AND IN DERMATOLOGY.

FRANK E. SIMPSON, M. D.,

CHICAGO.

Those who are interested in knowing the truth about radium and its possibilities should not fail to read the several reports issued in the last three years by the London Radium Institute. These reports are among the most solid contributions to radium therapy that have been published in any language and they tend to clear the field of much exaggeration from which radium has suffered.

A few words may first be said with reference to malignant disease. At the present time the general opinion among radium therapeutists is that operable cancers should not be treated by radium but should be operated on by the surgeon.

When malignant growths are inoperable, however, radium has proven of the greatest value, first, in rendering the growth operable, secondly, in occasionally bringing about recovery without operation. In the report of the London Radium Institute for 1914 several cancers of the rectum are referred to which were treated by pre-operative radiation. Considered as inoperable before radium was resorted to, these tumors were so much diminished in size that their removal by the surgeon was successfully accomplished. I have treated with radium numerous inoperable malignant tumors in various situations. These include cancers of various parts of the mouth, of the esophagus, rectum, bladder, uterus, breast, etc.

* Reprinted from the Illinois Medical Journal, August, 1916. Read before the 66th annual meeting of the Illinois State Medical Society at Champaign, May 18, 1916.

While it is difficult to make broad generalizations it is fair to say that a few cases have apparently recovered for periods of from one to three years; many cases have been benefited and the life of the patient has been prolonged; a few cases have received no marked benefit.

At some future time I shall make a statistical report of all of these cases.

I wish now to refer briefly to a few cases which illustrate some of the points mentioned.

Case 1. (Carcinoma of cheek, lip and antrum. Recurrent.)

I first saw J. O., male, aged 44, on January 2, 1915. The primary

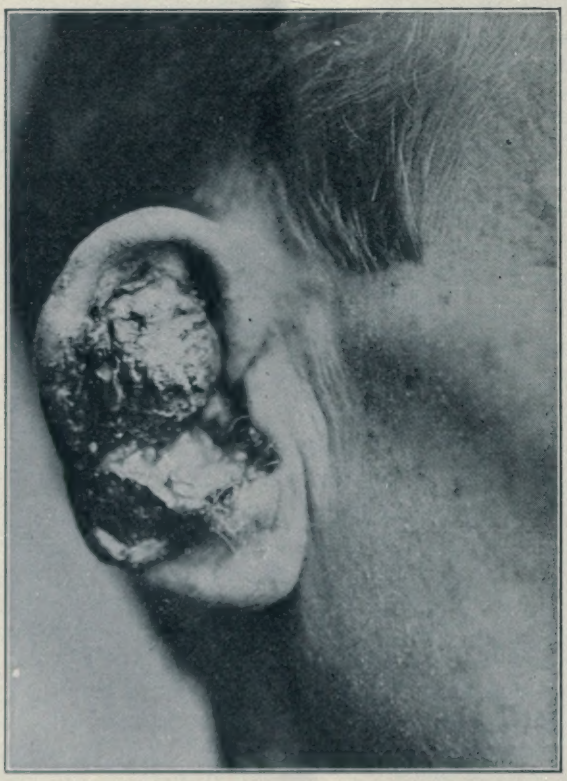

Fig. 1. Epithelioma of Right Ear. Photograph taken February, 1916.

growth had started as a cancer of the buccal mucous membrane about a year prior to my observation of the case. He had been operated on several times, but the growth had recurred after each operation. The last recurrence had been regarded as inoperable by several distinguished surgeons. Two days before I saw him he had consulted the Mayos at Rochester, Minn., and had been told there also that the growth was inoperable. Between January 2 and January 15, 1915, he received vigorous radium treatment at my hands and on April 15 I exhibited this patient before the Chicago Medical Society (North Side Branch) as a case that had made a clinical recovery under radiun.. When I last heard from this patient he was still in good health. This case is reported more fully in the *Chicago Medical Recorder* for July, 1913.

Case 2. Epithelioma of the posterior wall of the soft palate. This growth was regarded as inoperable by Dr. E. H. Skinner and Dr. Hall of Kansas City, who sent him to me.

This patient was given an exposure of ten hours in fractional doses by passing 50 mg. of radium through the anterior nares until it came in contact with the growth. The radium treatment was supplemented by x-rays applied by Dr. Skinner externally over the neck. A clinical recovery followed in this case in about eight weeks and the patient still remains in good health.

Case 3. (Cancer of the breast. Recurrent.)

Three years prior to my observation the left breast had been radi-

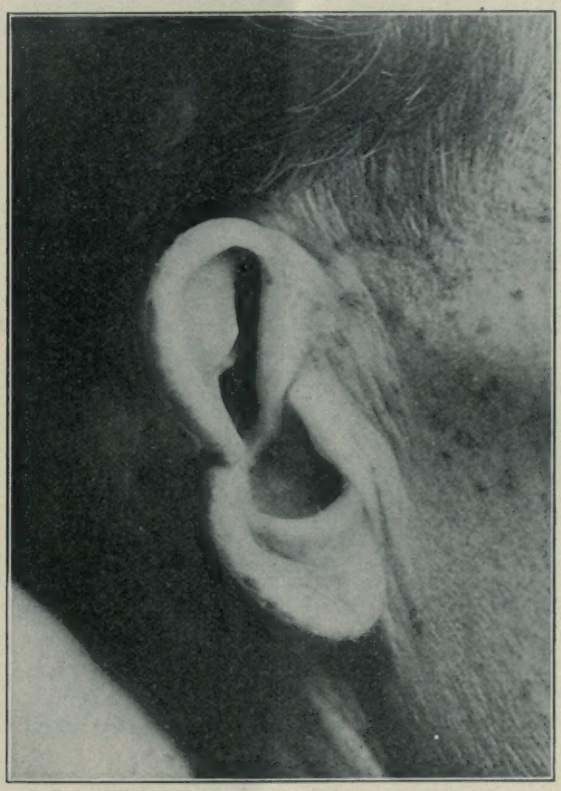

Fig. 2. Patient in Fig. 1 After Treatment with 150 mg. Radium Element (1 mm. Screen) for 20 Hours in Fractional Doses. Photograph Taken May, 1916.

cally removed by Dr. W. C. Wood of Decatur, and Dr. W. A. Melton of Warrensburg. When I first saw her in July, 1914, there were three groups of nodules, the size of filberts, on the chest wall and in the left axilla.

These were regarded as inoperable by Dr. S. C. Plummer of Chicago and Dr. Melton. Treatment was begun with radium in July, 1914. Six treatments were given with 50 m. g. of radium element.

Two months later the nodules had disappeared, she had gained fourteen pounds in weight and seemed clinically well. Seven months later (March, 1915) a slight recurrence took place and she was given six more treatments with 150 mg. of radium element. Two months

later (May, 1915) she seemed entirely well. Seven months later (December, 1915) the patient had a severe attack of intercostal neuralgia. Although nothing superficial could be made out, deep carcinoma was suspected and two treatments with 200 mg. radium element was given over the painful areas. She recovered from the attack, gained in weight and resumed her occupation. About four months later (April, 1916) another attack of intercostal neuralgia occurred. Owing to various circumstances it has been impossible to carry out adequate treatment and the future of this patient is of course problematical.

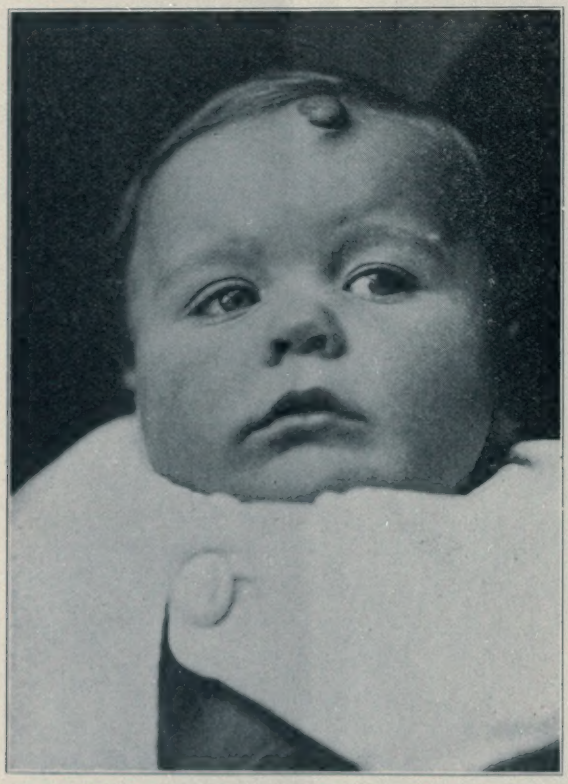

Fig. 3. Vascular Bluish Red Nevus of Forehead. Photograph Taken March, 1915.

This case is cited to illustrate both the remarkable relief which radium sometimes gives, the certain prolongation of life, and also the uncertainty of the eventual outcome in malignant disease of this type.

There are two chief reasons for the failure of radium treatment in malignant disease. The first and foremost lies in the very nature of carcinoma or sarcoma, i. e., in the frequent malignant infiltration of the tissues far beyond the area in which radium is effective, or to which radium can be applied. Unless new ways are devised of applying radium we cannot expect that more than a certain small percentage of inoperable malignant disease of internal organs will be permanently relieved. A second cause of failure lies in faulty technic, i. e., in methods of applying radium which are entirely inadequate. Frequently the amount of radium is too small. Not less than 50 mg. and occasionally

200 or more mg. radium element are essential in dealing with serious malignant conditions.

The distance into the tissue to which radium rays will effectively penetrate is still open to question. Following certain histologic studies it was widely accepted that a depth of 2 or 3 cms. is the farthest that effective therapeutic effects from radium may be anticipated. On the other hand, certain clinical effects that have been observed make it probable that radium rays may be effective at a much greater distance. For example, under radium treatment, the subsidence of severe symptoms, such

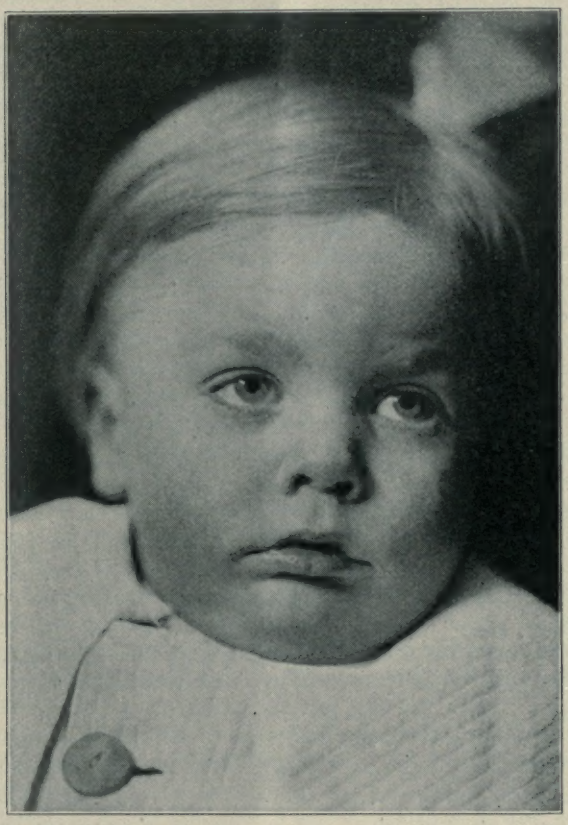

Fig. 4. Patient in Fig. 3 After Treatment with 10 mg. Radium Element 1/10 mm. Screen) for 12 Hours in Fractional Doses. Photograph Taken December, 1915.

as cough and dyspnea, due to pressure effects of a tumor in the mediastinum has been observed by Wickham, Hayward-Pinch, and others. A similar effect has been observed from the use of x-rays.

Radium in the vault of the vagina will easily fluoresce a piece of willemite applied to the abdomen, while photographic plates over the head will be darkened. This leads to the belief that the estimation of the exact depth to which radium effects extend is a complex problem and not entirely solved at the present time.

A somewhat neglected but important field is the use of radium as a post-operative measure to prevent relapse after the removal of a malignant tumor. It is, of course, difficult to estimate the extent to be derived from this measure.

The London Radium Intsitute states that in a series of cases in which operation was performed for malignant disease and in which recurrence would probably have taken place in a large percentage of cases, recurrence actually took place in only 19 per cent. This is believed to have been due to the post-operative radiation which was carried out.

My own experience in treating post-operative cases is favorable. My present plan is to begin post-operative radiation immediately after the operation wound heals. This plan has succeeded in some cases in apparently preventing a recurrence which might otherwise have been expected.

Turning now to certain diseases of the skin, cancer of the skin furnishes a brilliant field for radum therapy. I have now treated over 200 cases of epithelioma with radium and failure to bring about recovery has been rare. Failure, as a rule, occurs only in the very extensive cases, in which great loss of tssue has taken place and repair is almost impossible.

Cancer of the skin furnishes one exception to the general state ment that operable cancers should be operated on. In many cases radium therapy alone or combined with surgery is superior to surgery alone. Especially is this true in the rodent ulcer type of epithelioma. In these cases resolution is usually prompt under radium, the scar is surprisingly good, while recurrence is uncommon.

*Angioma.* In certain types of angioma (birthmarks) radium occupies a unique field. It is especially valuable in the angiomas of children, because of its painlessness and the ease of application. In certain cases the cosmetic result is superior to that obtained by any other method.

*Keloids* furnish another sphere in which the use of radium is attended with success. In certain types of tuberculosis, lupus erythematosus, sycosis vulgaris, intractable pruritus (as of the anus) and some other affections of the skin, radium has proven of signal service to the dermatologist.

In certain diseases of the skin it offers an alternative method to x-rays, while in a limited number of affections it holds a unique position.

(Lantern slides of various diseases showing the results obtained from the use of radium were then exhibited by the author.)

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## REPORT OF A CASE OF MELANOSARCOMA OF THE ORBIT, TREATED WITH RADIUM*

By Edward B. Heckel, M. D., F. A. C. S.,
PITTSBURGH, PA.
(From the Service of the Allegheny General Hospital.)

The subject of the following observation was seen first on April 16, 1912. The patient a man of forty-eight years of age. There was no history of any eye injury; general good health had always prevailed.

*Archives of Ophthalmology, XLV, 465-8, 1916. Read at the meeting of the American Ophthalmological Society, Washington, D. C., May 9, 1916.

The right eye had never annoyed him; the left eye, however, was and had been blind for twelve years; the condition then present had commenced thirteen years before; "it simply got weak."

Inspection showed the right eye negative in every respect with a corrected vision of 20/20, w. + 0.75 D. C. ax. 180°. The left eye: the cornea flat, yellowish, and opaque with some blood-vessels in its substance. It appeared like an eyeball which had undergone a sloughing of the cornea following a purulent conjunctivitis, although the patient denied any inflammatory condition of the eyeball at any time. The eyeball was somewhat shrunken and soft. An immediate enucleation was advised, but was refused by the patient, as he had heard "the removal of one eye would injure the other."

The patient returned, however, on September 9, 1913, for an enucleation of the left eyeball, because it had become painful. The right eye had remained as when first seen in April, 1912. The enucleation was done September 10, 1913. Quite a large dark staphylomatous mass was found protruding down and backward from the region of the equator of the eyeball. The eyeball with the projecting mass was carefully removed and the specimen sent to the pathological laboratory, where it was examined by Dr. Haythorn, the pathologist, and pronounced a melanosarcoma.

The orbit healed promptly and the patient told of the diagnosis and probable prognosis and that very likely there would be a return of the neoplasm. As the patient was very desirous of wearing a prosthesis, permission was granted with a full explanation that the presence of the foreign body might act as a source of irritation. He was also cautioned that if at any time any pain or discomfort developed, or if the orbital contents seemed to increase, or if the prosthesis should appear to bulge forward, to report at once, as this would in all probability mean a return of the neoplasm.

He wore the prosthesis with comfort and satisfaction until March, 1914, or about six months after the enucleation, when he returned. At this time he presented the appearance shown in Fig. 1. The orbital contents had decidedly increased. The prosthesis was pushed forward and downward with a distinct bulging of the upper and lower lids. Palpation revealed the orbit to be quite well filled with a spongy mass limited only by the bony walls of the orbit.

Previous experience with orbital exenteration for malignant disease of the orbit decided the writer to try radium in this case. Consequently on March 27, 1914, a deep incision was made into the orbit, practically bisecting it in its horizontal meridian, and fifty-three milligrams of radium element in a silver capsule, screened by 2*mm* of lead and covered with a rubber tube, inserted into the orbit in its anteroposterior diameter and held in place by means of a light compress and bandage and left in place for eleven and one half hours.

The presence of the radium with its screening was somewhat painful but did not cause any great discomfort. There was no febrile reaction. On April 13th, or seventeen days after the exposure to the radium rays, a distinct mass could be palpated in the center of the orbit. This mass was dissected out on the following day and proved to be strongly pigmented and $3 \times 2\frac{1}{2} \times 2cm$ in size. This was sent to the laboratory and the same diagnosis was made as was made of the enucleated eye, melanosarcoma. The orbit was lightly packed and two days later fifty-

**Illustrating Dr. Heckel's Article on "A Case of Melanosarcoma of the Orbit, Treated with Radium"**

Fig. 1.

Fig. 2.

Fig. 3.

three milligrams of radium element, screened as before, was inserted and allowed to remain in place for thirteen and one-half hours. The orbit did nicely after this with a slight sloughing discharge. The orbit was kept clean and healed promptly. It showed no evidence of any return of the neoplasm, at least there was no increase in the orbital contents, and after a few months presented the appearance shown in Fig. 2.

In November, 1914, the orbit became somewhat painful, especially at night, and there was a slight increase in its contents, especially along the nasal side. Palpation revealed a soft mass.

On December 7, 1914, quite a bit of strongly pigmented material was removed by curetting, and four days later fifty-three milligrams of radium element, screened as before, was inserted and left in place for twelve hours. This as before was followed by some sloughing from the orbit. The patient did nicely for six months or until June, 1915, when the orbit again became painful and palpation revealed a movable mass within the orbit. On June 11, 1915, the orbit was again curetted and one hundred milligrams of radium element, screened as before, was inserted and left in place for fourteen hours. This, as before, was followed by a sloughing from the orbit. The orbit continued to do nicely and when the patient was seen on July 12, 1915, he complained of nothing except a burning sensation which he had not observed before.

The patient was not seen again until December 22, 1915, when the socket was partly filled, clean, and quiet and the surrounding structures quite normal, as shown in Fig. 3. This photograph is slightly misleading as in reality there was quite a depression while the photograph makes the orbit appear quite full. The patient, however, appears pale and anaemic. He stated that he had lost 25 lbs. in weight but felt quite well. There was no pain or discomfort about the orbit. His blood was examined at this time by Dr. Haythorn with the following result:

Red cells, 4,716,000; leucocytes, 6360. *Hg.* 80%. Differential; neutrophiles, 63.5%; eosinophiles, 4.5%; basophiles, 1%. Mononuclear: small 9%; large, 12.5%. Transitionals, 1.5%. Unclassified, 8%.

The patient was seen last on April 25, 1916. The orbit has remained quiet, no pain or discomfort and no increase in its contents. His general health, however, has been rather poor: he has lost some weight and was confined to his bed during the entire month of February. He now weighs 114 lbs. his normal weight being 150 lbs. His physician, Dr. Midgley, under date of May 5, 1915, tells me "that there is very extensive involvement of the liver, spleen, and pleura and probably of the bowels."

The value of radium, if used in sufficient amount, in malignant disease of the orbit is, in the opinion of the writer, clearly demonstrated by this case. The radium kept this neoplasm of the orbit in absolute abeyance, and the patient in a condition to follow his vocation up to within the last three months or during a period of two and one-third years. The experience of this case has also suggested to the writer the use of the electric-cautery knife, at a cherry-red heat so as not to carbonize the tissues, for the removal of the malignant mass from the orbit instead of the knife, as has been suggested by others for the removal of malignant tissue from other parts of the body, so that when a similar case presents itself the writer will pursue the following technic: Make an incision through the skin of the lids about 5*mm* from the free border of lids, completely encircling the palpebral fissure, then dissect the skin only of the lids back to the bony orbital wall, then with an electric-

cautery knife, at a cherry-red heat, by repeated punctures directed toward the apex of the orbit and as closely to the bony wall as possible, completely sever the cone-shaped orbital content, and then introduce one hundred milligrams of radium element and allow it to remain in place twelve hours, the radium to be introduced again at some future time if necessary or advisable. The writer is strongly convinced that one application of one hundred milligrams of radium element is of more value than several applications of a less amount.

The writer is indebted and hereby expresses his appreciation and gratitude to Dr. Wm. H. Cameron of Pittsburgh for the generous loan of the radium used in this case.

---

## RADIUM IN FRENCH MILITARY SURGERY*

By William H. Cameron, M. D.,
PITTSBURGH.

In the March, 1916, number of the Pennsylvania Medical Journal, I published an article on "Radium in Military Surgery." ** In the article I gave a summary of the results obtained with radium in the treatment of backward wounds, sinus cases, etc., at certain English hospitals.

Recently I have been in communication with a well-known medical officer of the French army and he takes me to task for not giving due credit to certain French surgeons for the work they have been doing along this line. This apparent lack of courtesy was not intentional. I made careful inquiries regarding the subject during my visit to France in August, 1915, but could find nothing that would lead me to think that such work was being carried out in the French hospitals.

The following extracts translated from an article by Medical Adjutant J. Barcat, published in *Le Progres Medical,* May 20, will, I trust, be of interest and at the same time avoid any controversy that may occur in the future.

I trust that Mr. Rene Brocard, who very amiably put me in touch with Dr. Cameron, and the latter, who very obligingly sent me a resume of his observations in London, will excuse this manner of protest which I can not help expressing for the benefit of the French school, whose reputation can not be ignored . . . .

Each of the French radiotherapeutists, in a measure as circumstances have permitted, has not failed to benefit our wounded by the precious resources which radium offers. Thus to cite examples which we know, Dr. Dominici lending his masterly experience and his applicators to those chiefs of the hospital service in Paris who desired them, notably that eminent master of neurology, Dr. Babinski, and to Dr. Possi and Dr. Delaunay, etc.; Dr. Degrais, collaborator from the first of the lamented Wickham, giving his assistance as a trained specialist to the medical head of one of the great Parisian formations, and his applicators to his assistant, Anselme Belot, officially at the head of a radium therapy service in the Grand Palais; Mme. Laborde also director of another official service for the application of radium at the same Grand Palais.

*Pennsylvania State Medical Journal, XIX, 906-8, Sept., 1916.
**Reprinted in RADIUM, May, 1916.

As to our other Parisian colleagues specializing in this branch of physicotherapy of whom we have no news (Drs. Foveau de Courmelles, Cheron, Chevrier, Guisez, Haret, Mme. Fabre, Dr. Delammarre, etc.) doubtless it is not their fault, but rather that of circumstances if they have not disinterestedly placed their experience and their applicators in the service of our wounded.

Radium possesses biological and therapeutic properties which have been well known for some time, chiefly through the works of the French school. It is these properties which make possible its applications in the treatment of certain war wounds.

About 1910, Dominici (*Presse Med.*, Mch. 16, 1910,) Chevrier (Tr. Med., March 19, 1910) demonstrated its general action on the organism when introduced in the form of a radiferous solution or serum. This action is upon the oxidation processes, the hematopoiesis, and on the leukocytic defense which it increases. The nervous system likewise is influenced, the effect being tonic and sedative. Chevrier also, in the same work, shows the acceleration produced by radioactive dressings of low activity in the cicatrization of wounds; and with Dominici (see tne Precis de Radiumtherapie of J. Barcat, 1912, published by Maloine) we have shown the stimulating action of small doses upon tissues, its decongestive and resolving effect on subacute and chronic inflammations, effects which seem to result as much from its biochemical and stimulating action on the affected tissues as to the sedation which it exerts on nerve terminals, as well as the hindering influence, direct or indirect, which it exerts on bacterial agents.

While incapable of completely sterilizing the different bacteria it at least attenuates their virulence and their toxins (Danysz, Phisalix, Wickham, Dominici and Barcat, M. and Mme. Fabre, Tizzoni and Bougiovanni) and this action is not negligible, as Dr. Cameron seems to think.

The properties which we have just enumerated would indeed indicate its employment in the treatment of war wounds which have become chronic, either by atony of the tissues or by their profound infection (osteomyelitis).

For a long time also (Foveau de Courmelles, Congres de Berne, 1902; A. Darier, Clin. Ophthalm., 1905) we have known the analgesic effects of radium in neuralgias, its good effect on the restoration of the motor function of nerves, and that paralysis and painful neuritis are frequent complication in the war wounds.

Besides the action of radium on keloid (Williams, 1904) and on vicious cicatrices (Wickham and Degrais, 1908) would indicate its application in the treatment of these same complications of war wounds.

To give concrete examples of the valuable role which radium therapy plays in war surgery we will at first analyze briefly Dr. Cameron's work and we will then report some interesting observations which Dominici has communicated to us as well as some others already published by Mme. Laborde. We regret that circumstances depending on the war do not permit us to add some personal observations.

(Brief summary of Dr. Cameron's article concluding as follows:—)

In conclusion, the work of Dr. Cameron is very interesting, but it is not complete since his experiments have not been carried on with keloid or vicious cicatrices, nor the neuralgias. Among the observations of Dr. Dominici we will omit those dealing with chronic wounds since Dr. Cameron has given us a sufficient number of examples, and the keloids

which follow wounds since they do not present anything in particular. We will give in detail, however, certain of those relating to nerve lesions, a new chapter, since the cases previously known referred to neuralgias or neuritis of toxic or infectious origin. The author has used only his method of the ultrapenetrating rays: the tubes of .5 mm. wall thickness, screens of 1.0 to 1.5 mm., and 5 to 6 mm. of gauze or light screening material.

Traumatic neuritis may give rise to trophic disturbances, sensory or motor.

Trophic Disturbances: We will cite a case in which the cicatrix, following the amputation of the first phalanx of the medius, was the site of trophic troubles with discharge. A system of applicators consisting of three tubes containing a total of 57.8 mgm. of radium element was applied about the finger for a single application of one hour. In three weeks the aspect of the cicatrix had become normal.

Sensory Disturbances: Cases in which the analgesic action of radium plays a part are most numerous. Dominici divides them into separate groups: First, simple neuritis; second, neuritis accompanied by a conjunctivovascular inflammatory thickening; third, neuromas.

Simple Neuritis: Neuritis in non-cicatrized wounds. Following are examples:—

Wounded soldier, bed No. 9, Hospital Broca, service of Dr. Pozzi. Perforation of the leg by a ball which injured the internal popliteal sciatic nerve. Sharp pain preventing sleep in spite of the normal course of cicatrization. Two tubes each containing 16 mgm. of radium element and one containing 25.7 mgm. of radium were applied for one hour at three points, the two orifices of the trajectory and the posterior face of the leg. Immediate relief permitted sleep the following night. The next day a second application of eight hours on each of the same spots. The dressings which followed revealed a slight crisis, followed soon by progressive sedation with complete healing by the third week.

Wounded, bed No. 6 (same service). Quite similar case, in which complete healing was obtained at the end of fifteen days after two applications at eight-day intervals of only one hour on each point, using a flat applicator containing 26.6 mgm. of radium element.

Wounded soldier in the service of Dr. Babinski (Salpetriere). A ball wound in clavicular and subclavicular region injuring the brachial plexus and particularly the origin of the ulnar and median, the whole course of which in the upper part of the member is painful. The same flat applicator used in the preceding case was applied for twenty minutes at each point along the course of the nerves. Immediate amelioration followed by a little relapse. A second application similar to the first made three weeks later did not prevent the recurrence of pain. A third application made on the eighth day with applicators containing in the total 139.3 mgm. of radium element resulted in immediate relief, interrupted by a slight relapse, which soon gave way to complete healing.

Wounded soldier, bed No. 17, Hospital Broca. Fracture of the neck of the femur by the explosion of a grenade, with a lesion of the sciatic giving rise to terrible pain in the lower member, especally in the foot. Flat applicator containing 26.6 mgm. of radium element was applied to the foot for two hours without immediate result. Next day

the applicator was moved all along the nerve two hours at each point. Pain persisted during forty-eight hours and then progressive sedation resulting in a healing three weeks later.

Neuralgia Persistent after the Cicatrization of the Wound: Example, wounded soldier G (service Dr. Babinski). Normal cicatrization of the wound on the inner side of the right arm and after three and one half months the patient felt sharp pains along the ulnar nerve. A flat placque (28 sq. cm. area) containing 8.4 mgm. of radium element was applied for twenty-four hours; slight exacerbation on the following day and progressive improvement. On the twentieth day a second application of the same placque was made for fourteen hours; slight relief and improvement which ended in a healing after five weeks (Dominici-Heitz).

Wounded soldier L. (same service). Reported by Dominici and Heitz. A ball wound in the lumbar region. Two and one-half months afterwards in spite of complete cicatrization, sharp pain in the lower member preventing sleep. Same flat applicator containing 8.4 mgm. of radium element was applied in various spots in the lumbar region (total of seventy-four hours in seven days). Improvement from the second day and a relapse on the eighth day soon followed by progressive sedation until cured, seventeen days after starting treatment.

Neuritis accompanied by an inflammatory thickening of the neurilemma or of the neighboring conjunctivovascular tissue. Example:—

Lieutenant G. (service of Dr. Babinski). Ball wound due to perforation at the root of the arm on the inner side. Sharp pain along the ulnar and median. Thickening, painful to the touch along the vascular-nervous paquet of the axilla in the upper third of the arm. A system of applicators containing in the total 48.2 mgm. of radium element was moved over this zone fifteen days giving a total of three and one half hours at each point. Later a flat applicator containing 16 mgm. of radium element was applied so as to give each point three hours of irradiation. Each seance followed by an exacerbation, increasingly feeble, which did not prevent a progressive sedation, with complete healing in six weeks.

Neuroma: Dominici and Heitz have had occasion to treat two cases of which one was refractory, and the other, still under observation, has diminished to one half its original size.

Motor Troubles: Two cases which Dominici has communicated to us are not as good as the preceding relative to sensory disturbances. Two cases showed no improvement.

Vicious Cicatrices: Mme. Laborde particularly has studied this point and her work is all the more interesting since in the two observations, already published (Acad. of Science, Aug. 9, 1915), she has been able to demonstrate the efficacy of the ultra-penetrating radiation on nonkeloidal cicatricial tissue, which Wickham and Degrais had declared amenable only to destructive doses, that is to say vigorous applications of the soft and moderately soft rays. In the following, these two observations are cited:—

Capt. B., wounded by a grenade at level of the fold of the elbow, the resulting cicatrix forming a fibrous band which limited the extension of the forearm to an angle of 110° at most. This band formed a pad which was deep, 7 cm. long and 2 cm. in width, which by compression on the median had produced a partial degeneration. During one month, after five applications of one and one half hours each, given about eight

days apart, with a system of applicators containing 37.8 mgm. of radium element, screened by 0.5 mm. of platinum, 1.5 mm. of rubber and two thicknesses of gauze, the zone of fibrous tissue disappeared, extension of the arm was almost complete, and the electric reaction of the nerve is almost normal.

Sergeant C. Fracure of the neck of the humerus by a grenade with complete paralysis of the biceps, probably due to a lesion of the muscles and skin which presents a reaction representing almost complete degeneration and which seems bound at the level of a scar, which forms a linear furrow adherent to the bone in the anterointernal region of the arm below the origin of the pectoralis major. Six applications of one hour made with the same applicators at eight-day intervals. Six days after the second application voluntary contractibility reappeared at the same time as the faradic excitability, excitation by the galvanic current giving a less gentle effect.

Conclusions: From the preceding examples one may judge of the importance of the service of radium in war surgery. Atonic wounds; chronic fistulas in connection with the bone, or slight sequestrations of which, according to Cameron, favor the spontaneous expulsion; keloids following traumatism; vicious cicatrices; traumatic neuritis, all appear as indications well established and, it may be said, most valuable.

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## THE AMERICAN RADIUM SOCIETY

During the annual session of the American Medical Association in Detroit in June, a group of medical men interested in radium therapy, met at dinner and discussed the desirability of forming a national organization of radium therapeutists. With this in view the following temporary officers were elected:—Dr. W. H. B. Aikins, of Toronto, temporary president, and Dr. R. E. Loucks, of Detroit, temporary secretary. Committees on Membership and on the Constitution were appointed and the Secretary was instructed to bring the matter to the attention of radium therapeutists and qualified physicists who have specialized in radioactivity, in inviting them to attend a dinner which was to be given in Philadelphia, Thursday evening, October 26th, at the Rittenhouse Hotel, during the meeting of the Clinical Congress of Surgeons of North America.

Following this dinner, which was well attended, those present proceeded to the organization of the society. Dr. H. K. Pancoast, in charge of the dinner, introduced the acting president. Dr. W. H. B. Aikins. It being the unanimous opinion of those present that such a national organization of radium therapeutists was desirable in the interest of advancing the study of radium therapy, a motion to organize a permanent society was passed and the report of the committee on the constitution and by-laws was called for. After a first reading, by Dr. Henry Schmitz, chairman of the committee, a constitution and by-laws were adopted. The name chosen for the organization is The American Radium Society.

The objects of the society are to promote the scientific study of radium-therapeutics, and to seek to maintain a high ethical standard among those using the radioactive substances therapeutically. Active membership in the society is to be limited to those holding a medical degree from a reputable medical school, and qualified for membership in the American Medical Association or the American Institute of Homeopathy, or its equivalent, together with a sufficient experience in radium therapy. Qualified physicists specializing in the study of radioactivity are eligible for associate membership.

Following the adoption of the constitution and by-laws permanent officers were elected to serve for the next year as follows:—

President, Dr. W. H. B. Aikins, Toronto.
Vice President, Dr. R. H. Boggs, Pittsburgh.
Recording Secretary and Treasurer, Dr. R. E. Loucks, Detroit.
Corresponding Secretary, Dr. H. K. Pancoast, Philadelphia.
Members of Executive Council, Drs. J. M. Lee, J. B. Bissell, Howard Fox, and the officers.

The Membership Committee to pass upon the qualifications of applicants and make recommendations to the Society at the Annual Executive Sessions:—

Dr. W. H. Cameron, Chairman, Pittsburgh.
Dr. H. K. Pancoast, Philadelphia.
Dr. J. B. Bissell, New York.

It was decided to hold the next Executive Session in New York City, preceding the Annual Session of the American Medical Association, June 4th, 1917.

Following the organization and election of officers, Dr. Charles H. Viol, of Pittsburgh, addressed the society on "Radium Radiations from the Physical Standpoint".

Active members of the American Radium Society.
W. H. B. Aikins, M. D., Toronto, Canada.
C. E. Alliaume, M. D., Utica, N. Y.
J. B. Bissell, M. D., New York, N. Y.
R. H. Boggs, M. D., Pittsburgh, Pa.
W. H. Cameron, M. D., Pittsburgh, Pa.
J. T. Case, M. D., Battle Creek, Mich.
Howard Fox, M. D., New York, N. Y.
S. C. Glidden, M. D., Danville, Ill.
T. C. Kennedy, M. D., Indianapolis, Ind.
J. M. Lee, M. D., Rochester, N. Y.
Isaac Levin, M. D., New York, N. Y.
H. W. Longyear, M. D., Detroit, Mich.
R. E. Loucks, M. D., Detroit, Mich.
W. N. Magill, M. D., Providence, R. I.
C. Jeff. Miller, M. D., New Orleans, La.
H. K. Pancoast, M. D., Philadelphia, Pa.
D. T. Quigley, M. D., Omaha, Neb.
M. J. Rosenthal, M. D., Fort Wayne, Ind.
F. E. Simpson, M. D., Chicago, Ill.
Henry Schmitz, M. D., Chicago, Ill.
W. A. Weed, M. D., Birmingham, Ala
Associate Member.
Charles H. Viol, Ph. D., Pittsburgh, Pa

## REVIEWS AND ABSTRACTS.

J. T. Geraghty, M. D. (Baltimore). Treatment of Bladder Tumors. N. Y. Med. Journ. CIV, Oct. 28th, 1916. pp. 838-40. Read before the New York Academy of Medicine, April 27th, 1916. "Radium. During the past eighteen months, we have treated about fifteen tumors with radium alone or with radium in combination with fulguration. Our experience has not been sufficient to draw definite conclusions regarding the ultimate value of this method. It has been employed most frequently on malignant papillomata in combination with fulguration, and the effect of the radium has been most striking. In three cases in which fulguration has been employed over long periods of time, and which had resisted very stubbornly all efforts to entirely destroy them, radium seemed entirely to change their nature. In all three cases after receiving 600 mg. hours of radium applied directly against the tumor, the latter disappeared with astonishing rapidity on resuming fulguration. When possible, the radium is applied directly against the tumor by means of the Young radium cystoscope, using a tube with an opening on one side, so that the beta rays can be applied directly to the tumor while the rest of the bladder wall is screened. The combination of radium and fulguration in this type of case seems to promise much. So far, we have not succeeded in definitely eradicating the papillary or other infiltrating types of carcinoma." . . . . . .

"Conclusions. The experience in our clinic in recent years indicates clearly that benign and malignant papillomata should be treated by fulguration; excision or resection should not be practised except where intravesical treatment is impossible or very difficult. Radium has been a great aid in the treatment, particularly of the malignant papillomata, and our best results have been obtained when the radium was placed directly against the tumor. When the tumor is a papillary carcinoma, resection should be practised by a technic which will reduce to a minimum the dangers of implantation or recurrence. Radium as yet has not given us results in this type of tumor sufficiently encouraging to warrant our employment of it in preference to resection in cases which are considered operable. Following resection, cystoscopy should be performed at an early date, and at frequent intervals, especially for the first year, and if recurrences are noted, they can occasionally be successfully treated by a combination of fulguration and radium. Unfortunately, as already stated, a large percentage of cases are first seen with the disease so extensive that nothing more than palliative measures can be adopted."

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George M. Mackee, M. D. (New York). Progress in the Treatment of Skin Diseases. N. Y. Med. Journ. CIII, Mar. 4, 1916, pp. 441-4. "Radium is now being extensively employed in treatment of skin diseases. . . . . It has produced very superior results in the treatment of deep seated vascular naevi, but it is not so efficacious in the port wine mark. It is of use in leukoplakia and lupus erythematosus. In these conditions it is at present superior to the X-ray. In inaccessible locations radium can be used to advantage, but where extensive surfaces are to be treated the X-ray is to be indicated."

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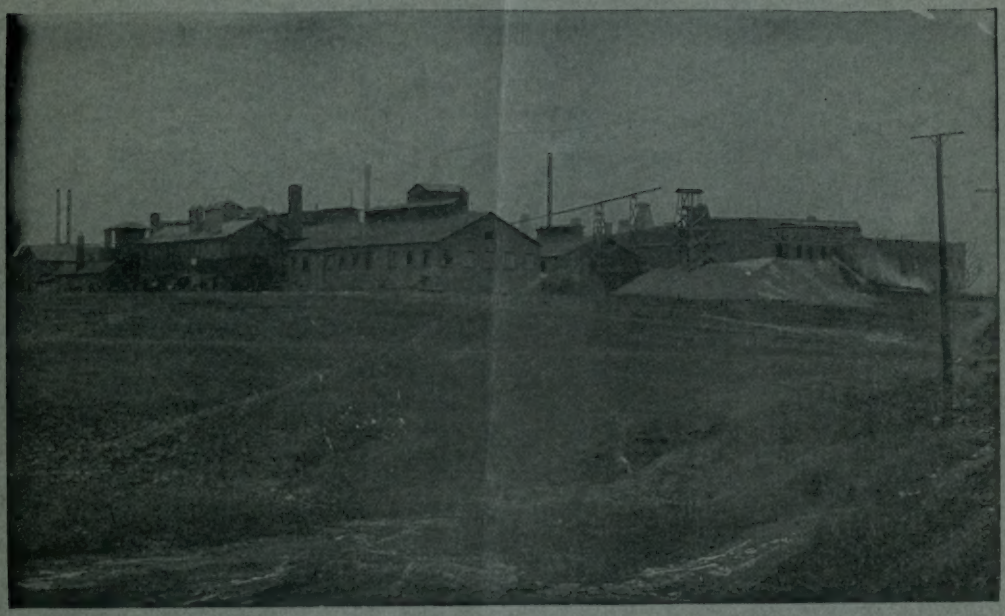

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